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## **SMD Operations Procedures Manual**

### **8.1.3.5 OPERATION OF THE THREE 100 HP SULLAIR COMPRESSORS FOR MAGCOOL**

Text Pages 1 through 3

#### **Hand Processed Changes**

<b>HPC No.</b>	<b>Date</b>	<b>Page Nos.</b>	<b>Initials</b>
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Division Head

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Date

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### **8.1.3.5 Operation of the Three 100 HP Sullair Compressors for MAGCOOL**

#### **1.0 Purpose**

This procedure provides instructions for startup, operation and shutdown of the single stage Sullair screw compressors which supplies helium for cooldown, warmup and pump and purge operations of MAGCOOL.

#### **2.0 Responsibilities and Scope**

- 2.1 The operator is responsible for startup, operation and shutdown of the compressor.

#### **3.0 Prerequisites**

- 3.1 Operator must be trained by the supervisor or an authorized operator.
- 3.2 Training shall include operation of the MAGCOOL pump and purge, Cooldown 1 and 2 and warmup systems.

#### **4.0 Precautions**

- 4.1 Hearing protection shall be worn in the compressor room.
- 4.2 Ensure that no personnel are near unit to be started unless they are issued hearing protection and aware of compressor room environment.

#### **5.0 Procedure**

- 5.1 Ensure that water supply and return **VALVES** to oil cooler and after cooler **ARE OPEN**.
- 5.2 **CHECK** that the **OIL LEVEL** in the sight glass of the oil tank is correct.
- 5.3 Make sure both the **SUCTION AND THE DISCHARGE VALVES ARE OPEN** and the manual by-pass valves are closed.
- 5.4 These three compressors may be run in one of two ways, either **LOCAL** or **REMOTE**.
- 5.5 Local operation (in I/O rack, "**Compressor Stop**" switch is in the up position).

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- 5.5.1 By turning the selector switch to the **LOCAL** position, a compressor can be started only at its control panel.
- 5.5.2 Turn "**STOP/RUN**" selector switch to "**RUN**".
- 5.5.3 Turn "**START/RESET**" switch to "**RESET**" position and press button.
- 5.5.4 Turn "**START/RESET**" switch to "**START**" position and press button. The oil pump will run for approximately 1 minute and then the compressor motor will start.
- 5.5.5 Press "**LOAD**" button to fully load compressor.
- 5.6 Remote Operation
  - 5.6.1 At the computer I/O rack, put "**COMP. STOP**" switch in center position.
  - 5.6.2 At the computer CRT call up page D3 and hit "**DD**" mode key.
  - 5.6.3 Move cursor to desired compressor chevron.
  - 5.6.4 Hit "**SET**" key. After approximately 1 minute, compressor will start. Enter compressor start time in logbook.
- 5.7 Check pressure, temperature and oil level to make sure the compressor is operating in its design range two times per shift. Document step 5.7 in the Compressor Operator's Logbook.
- 5.8 Any sign of oil loss shall be logged and reported to the supervisor or engineer for investigation.
- 5.9 Automatic shutdown of the system occurs if any of the following system switches are activated:
  - Low oil differential pressure, trip valve is set at 35 psid
  - High discharge temperature, trip valve is set at 150 F
  - High oil temperature, trip valve is set at 130 F
  - High discharge pressure, trip valve is set at 275 psig
  - Low suction pressure, trip valve is set at 0 psig

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- 5.10 The compressor can be shutdown manually in case the controller fails to shutdown the unit during any of the above events or in case of emergency situations due to loss of helium, oil or water.
- 5.11 Normal shutdown or manual emergency shutdown of the system is accomplished by depressing the local "STOP" push button or at computer, page D3, "DD" mode hit "CLR" key. Enter compressor stop in Logbook.

## **6.0 Documentation**

- 6.1 Documentation shall be kept in the Compressor Operator's Logbook in Building 902.

## **7.0 References**

- 7.1 Operators Manual and Parts List, Sullair Refrigeration Compressor, CB series compressor package.
- 7.1 Item 7.1 is part of the MAGCOOL Operation and Maintenance Manual provided by CVI. A copy of this manual is kept in the MAGCOOL Control Room in Building 902.

## **8.0 Attachments**

None